

**ANTIQUITIES PERMIT APPLICATION FORM
ARCHEOLOGY****GENERAL INFORMATION**

I. PROPERTY TYPE AND LOCATION

Project Name (and/or Site Trinomial) Mountain Valley Outfall
County (ies) Johnson
USGS Quadrangle Name and Number Joshua 1979 and Keene 1979
UTM Coordinates Zone 14 E 652191 N 3594388
Location Survey of thirteen outfall locations along Village Creek in the City of Joshua, Johnson County, Texas

Federal Involvement Yes No
Name of Federal Agency USACE
Agency Representative Jimmy Barrera

II. OWNER (OR CONTROLLING AGENCY)

Owner City of Joshua
Representative Mike Peacock
Address 101 South Main Street
City/State/Zip Joshua, TX 76058
Telephone (include area code) 817-558-7447 Email Address mpeacock@cityofjoshuatx.us

III. PROJECT SPONSOR (IF DIFFERENT FROM OWNER)

Sponsor SAME
Representative _____
Address _____
City/State/Zip _____
Telephone (include area code) _____ Email Address _____

PROJECT INFORMATION

I. PRINCIPAL INVESTIGATOR (ARCHEOLOGIST)

Name Kevin Stone
Affiliation Integrated Environmental Solutions, LLC
Address 610 Elm Street, Suite 300
City/State/Zip McKinney, TX 75069
Telephone (include area code) 972-562-7672 Email Address kstone@intenvsol.com

(OVER)
ANTIQUITIES PERMIT APPLICATION FORM (CONTINUED)

II. PROJECT DESCRIPTION

Proposed Starting Date of Fieldwork 06/30/2016
Requested Permit Duration 3 Years Months (1 year minimum)
Scope of Work (Provided an Outline of Proposed Work) Intensive archeological pedestrian survey. See attached scope of work

III. CURATION & REPORT

Temporary Curatorial or Laboratory Facility Integrated Environmental Solutions, LLC
Permanent Curatorial Facility TARL

IV. LAND OWNER'S CERTIFICATION

I, Mike Peacock, as legal representative of the Land Owner, City of Joshua, do certify that I have reviewed the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Owner, Sponsor, and Principal Investigator are responsible for completing the terms of the permit.

Signature _____ Date _____

V. SPONSOR'S CERTIFICATION

I, Mike Peacock, as legal representative of the Sponsor, City of Joshua, do certify that I have review the plans and research design, and that no investigations will be performed prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Sponsor, Owner, and Principal Investigator are responsible for completing the terms of this permit.

Signature _____ Date _____

VI. INVESTIGATOR'S CERTIFICATION

I, Kevin Stone, as Principal Investigator employed by Integrated Environmental Solutions, LLC (Investigative Firm), do certify that I will execute this project according to the submitted plans and research design, and will not conduct any work prior to the issuance of a permit by the Texas Historical Commission. Furthermore, I understand that the Principal Investigator (and the Investigative Firm), as well as the Owner and Sponsor, are responsible for completing the terms of this permit.

Signature _____ Date _____

Principal Investigator must attach a research design, a copy of the USGS quadrangle showing project boundaries, and any additional pertinent information. Curriculum vita must be on file with the Archeology Division.

FOR OFFICIAL USE ONLY

Reviewer _____ Date Permit Issues _____
Permit Number _____ Permit Expiration Date _____
Type of Permit _____ Date Received for Data Entry _____

Attachment to ACT Permit Application
RESEARCH DESIGN & WORK PLAN FOR THE CULTURAL RESOURCES SURVEY
MOUNTAIN VALLEY OUTFALL PROJECT
CITY OF JOSHUA, JOHNSON COUNTY, TEXAS

PREPARED BY
INTEGRATED ENVIRONMENTAL SOLUTIONS, LLC
MCKINNEY, TEXAS

PROJECT DESCRIPTION

This scope of work has been developed by Integrated Environmental Solutions, LLC (IES), which has been contracted by the City of Joshua to perform an intensive cultural resources survey in advance of the proposed Mountain Valley Outfall project located in the City of Joshua, Johnson County, Texas (**Figure 1**). The goal of the proposed project is to perform improvements on 13 selected areas, where failing stormwater outfall structures will be improved, and where natural streams will be modified for outfall installation. The project area or the Area of Potential Effects (APE) is plotted on the Joshua and Keene 7.5 Minute Series U.S. Geological Survey (USGS) Quadrangle sheets (**Figure 2**).

REGULATORY FRAMEWORK

As the City of Joshua is a political entity of the State of Texas, it is required to comply with the Antiquities Code of Texas (ACT). The ACT was passed in 1969 and requires that the Texas Historical Commission (THC) staff review an action that has the potential to disturb historic and archeological sites on public land. Actions that require review under the ACT include any project that will have ground-disturbing activities on land owned or controlled by a political subdivision of the state and include easements on private property. However, if the activity occurs inside a designated historic district, affects a recorded archeological site, or requires onsite investigations the project will need to be reviewed by the THC regardless of project size.

As the project will require at least one Section 404 of the Clean Water Act (CWA) permit from the U.S. Army Corps of Engineers (USACE) and could be receiving grant funding from the U.S. Environmental Protection Agency (EPA) Region 6, the project would be subject to the provisions of the National Historic Preservation Act (NHPA) of 1966, as amended. The NHPA (16 U.S. Code [USC] 470), specifically Section 106 of the NHPA (16 USC 470(f)) requires the State Historic Preservation Officer (SHPO), an official appointed in each State or territory, to administer and coordinate historic preservation activities, and to review and comment on all actions licensed by the federal government that will have an effect on properties listed in the National Register of Historic Place (NRHP), or eligible for such listing. Per 36 Code of Federal Regulations (CFR) Part 800, the federal agency responsible for overseeing the action must make a reasonable and good faith effort to identify cultural resources.

Identification, evaluation, and documentation of archeological sites shall be completed in accordance with the provisions of the Secretary of the Interior's Standards. Archeological investigations shall be performed and documented at sufficient levels to satisfy Texas SHPO and THC requirements for determining the presence of archeologically significant properties within the APE in accordance with 36 CFR 60.4 and with 13 Texas Administrative Code (TAC) 26, which outline the regulations for implementing Section 106 and the ACT.

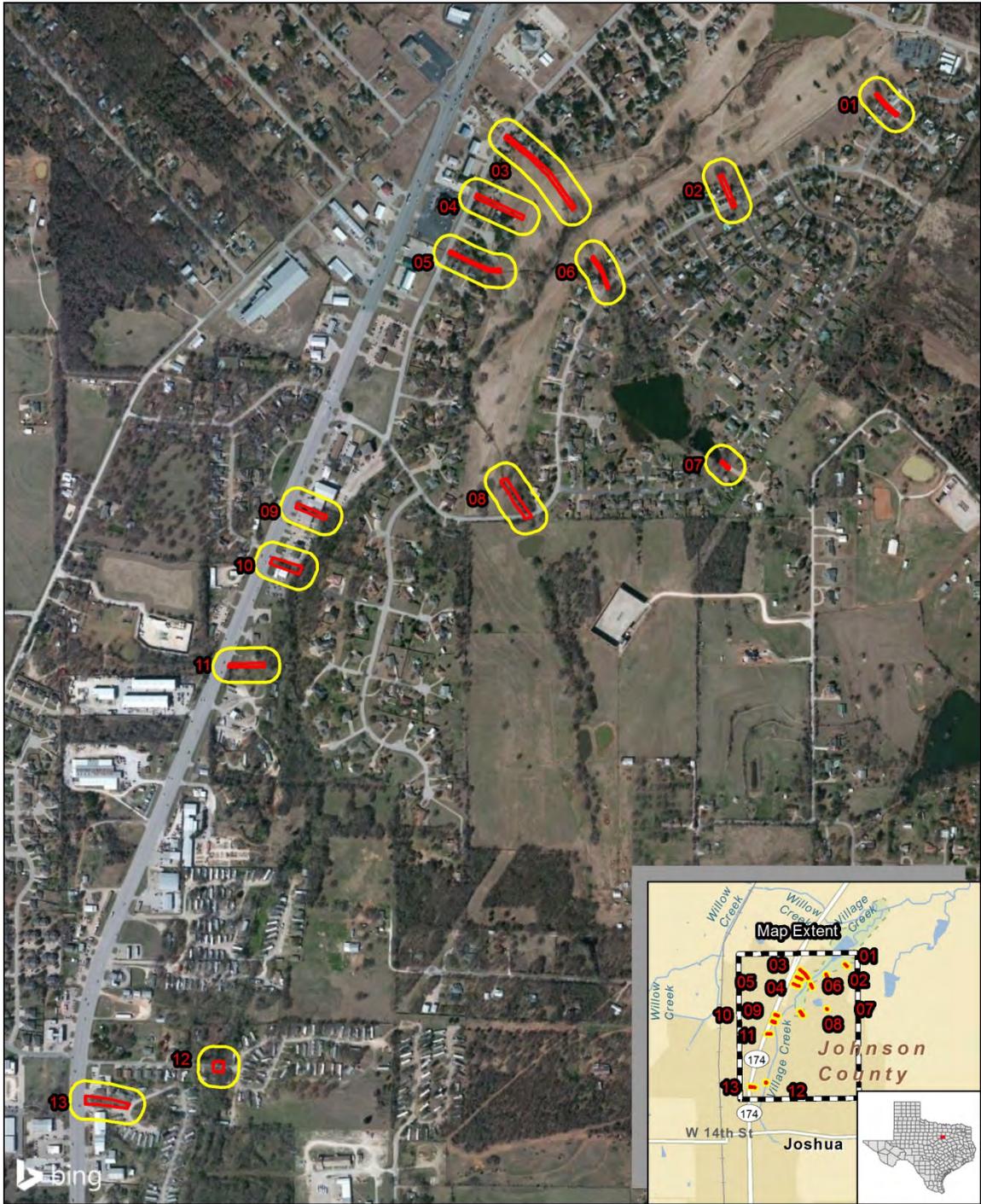
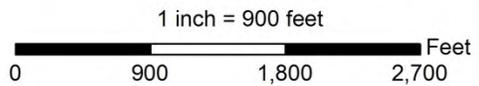


Figure 1
General Location Map

County: Johnson
 State: Texas
 Date map created: 05/10/2016
 Source: (c) 2009 Microsoft Corporation
 and its data suppliers; ESRI 10.3
 Bing
 Streetmap

- Area of Potential Effects - Direct
- Area of Potential Effects - Indirect



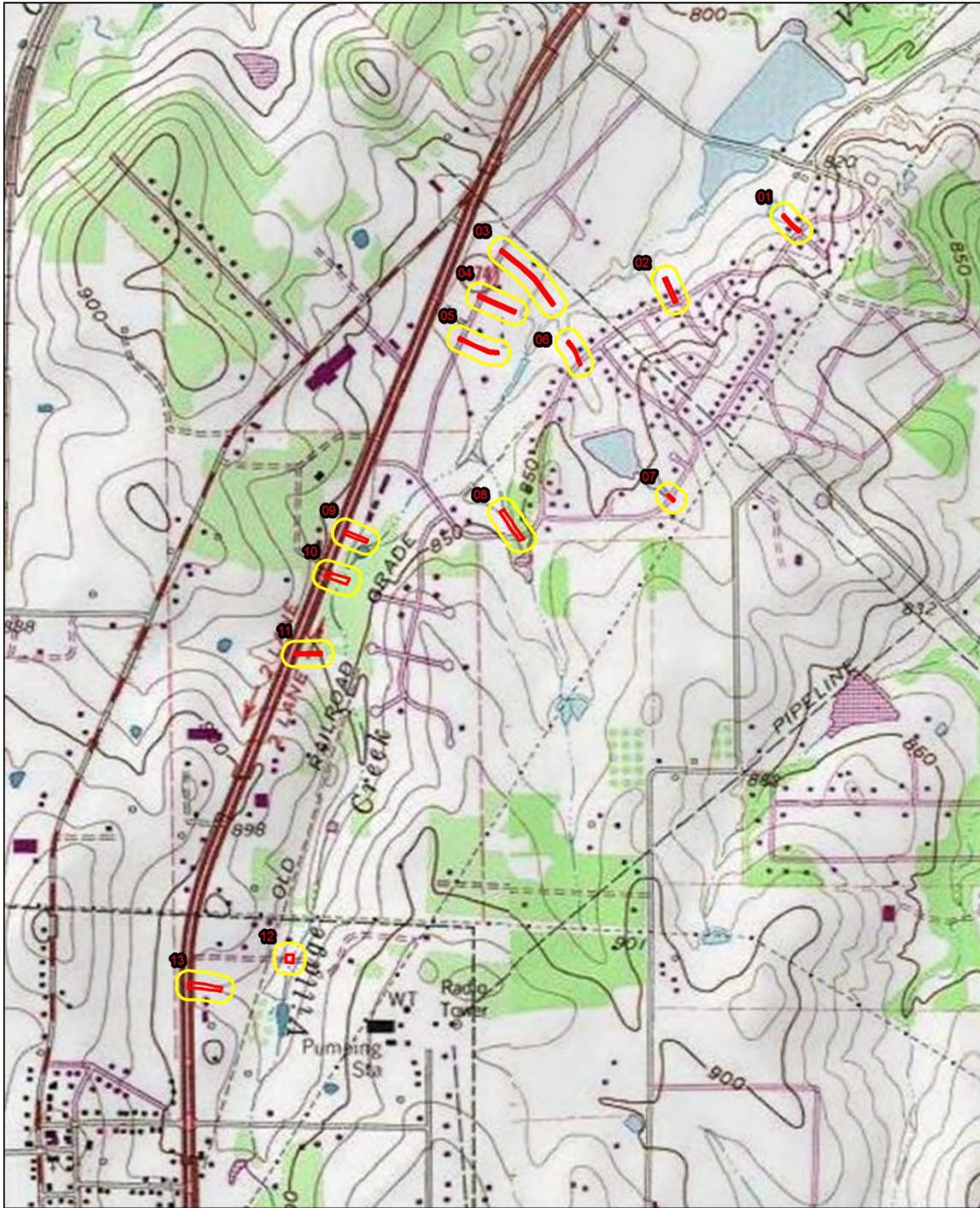
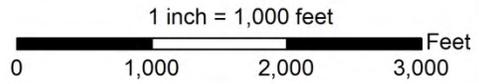


Figure 2
Topographic Setting

County: Johnson
 State: Texas
 Date map created: 05/10/2016
 Source: USGS Topographic Map
 7.5' Quadrangle
 Joshua 1979
 Keene 1979

- Area of Potential Effects - Direct
- Area of Potential Effects - Indirect



AREA OF POTENTIAL EFFECTS

Direct APE

The direct APE for the project will encompass approximately 2.24 acres, consisting of 13 separate outfall sections. These numbered sections are reflected on **Figure 1**.

- **Section 1** is adjacent to the intersection of Oakwood Place and Lakeside Drive. Proposed plans call for the installation of a 24-inch culvert, grading of a 160-foot downstream channel, and sewer adjustments.
- **Section 2** is adjacent to the intersection of Country Club Drive and Rosewood Drive. Improvements in this section call for the installation of a 3-foot by 2-foot box culvert, grading of a 200-foot grass lined channel, and sewer adjustments.
- **Section 3** is located 270 feet southwest of the intersection of Mountain Valley Boulevard and Kings Road. Improvements in this section call for construction of a new downstream headwall and replacement of 340 feet of high-density polyethylene (HDPE) pipe with 36-inch reinforced concrete pipe (RCP).
- **Section 4** is located 220 feet northeast of the intersection of Mountain Valley Boulevard and Rosemont Place. Proposed plans call for grading of a 340-foot channel.
- **Section 5** is located 220 feet southwest of the intersection of Mountain Valley Boulevard and Rosemont Place. Improvements in this section call for the replacement of 6-foot by 36-inch RCP, the regrading of a total of 350 feet of channel, and sewer adjustments.
- **Section 6** is located 290 feet southwest of the intersection of Country Club Drive and Edgehill Road. Proposed plans call for the installation of a 48-inch culvert crossing, downstream grading of a 200-foot channel, and sewer adjustments.
- **Section 7** is located adjacent to the intersection of Edgehill Drive and Sandy Lane Court. Improvements in this section call for the replacement of a 5-foot by 3-foot culvert, installation of 30-inch culvert, and sewer adjustments.
- **Section 8** is located 300 feet southwest of the intersection of Country Club Drive and Edgehill Road. Proposed plans call for the installation of a 5-foot by 3-foot box culvert, tree and brush removal, grading of a 250-foot channel, and sewer adjustments.
- **Section 9** is adjacent to the intersection of Interstate Highway (IH) 174 and Louise Drive. Improvements in this section call for the grading of a 240-foot channel and sewer adjustments.
- **Section 10** is adjacent to the intersection of IH 174 and Baldwin Drive. Proposed plans call for no improvements.
- **Section 11** is located 310 feet northeast of the intersection of IH 174 and Sleepy Hollow Mobile Home Park. Improvements in this section call for the grading of a 300-foot channel and sewer adjustments.
- **Section 12** is located 1,000-feet east of the intersection of IH 174 and Oak Hill Drive. Proposed plans call for the installation of two 12-foot by 8-foot culverts and sewer adjustments.
- **Section 13** is adjacent to the intersection of IH 174 and Pecan Village Mobile Home Park. Improvements in this section call for the construction of a 250-foot channel and sewer adjustments.

Indirect APE

As the project will require at least one Section 404 permit and could obtain grant funding from the EPA, an assessment of the indirect effects is required to comply with NHPA. Elements of the project that will remain above ground will have minimal vertical footprints and will consist of culvert structure installation. As such, indirect effects will only be considered within a 100-foot area surrounding each above ground element.

BACKGROUND INFORMATION

Texas Archeological Sites Atlas Review

A file search within the Texas Archeological Sites Atlas (TASA) maintained by the THC identified that there are no previously recorded archeological sites, National Register Properties, historical markers, or cemeteries located within the proposed project area (TASA 2016). The TASA records did identify six archeological surveys that have been conducted within one-mile (~1,600 meters [m]) of the APE, which are summarized in **Table 1 (Figure 3)**.

Table 1: Previous Archeological Surveys within One-Mile of the APE

Agency	ACT* Permit No.	Firm/Institution	Date	Survey Type	Location (Approximate)
TWDB	-	-	1997	Linear	200-feet south of Section 13
TWDB	-	-	1997	Linear	.25-mile south of Section 13
TWDB	-	-	1997	Linear	0.37 south of Section 13
TWDB	2773	TWDB	2002	Area	0.31-mile northwest of Section 13
TWDB	2773	TWDB	2002	Area	0.7-mile southwest of Section 13
FERC	-	Horizon	2005	Area	0.83-mile west of Section 01

*ACT=Antiquities Code of Texas

Topographic Setting, Soils, and Geology

The USGS Joshua and Keene 7.5' Quadrangle map illustrates the APE as being located within the Village Creek watershed. The headwaters of Village Creek are located approximately 0.63 mile south of the APE. One of the 13 APE sections (Section 12) will transpire solely along Village Creek. Eight of the 13 APE sections will transpire entirely along unnamed tributaries to Village Creek. The remaining four APE sections will transpire along unnamed tributaries, but will include a portion of Village Creek or land directly adjacent. Village Creek flows in a general northeast direction across the project area and has a confluence with Willow Creek approximately 0.73-mile northeast of the APE (see **Figure 2**). Across the majority of the project area, the Village Creek valley remains narrow with rapidly rising adjacent topography. Flooding within the majority of the project area would then be related to high velocity flooding events. Within approximately one-mile of the Village and Willow Creeks confluence, the Village Creek valley floor widens and becomes more gradually sloped. Although APE Sections 1, 2, 3, and 6 are located within this distance, they are located completely within unnamed tributaries and are not within creek's floodplain.

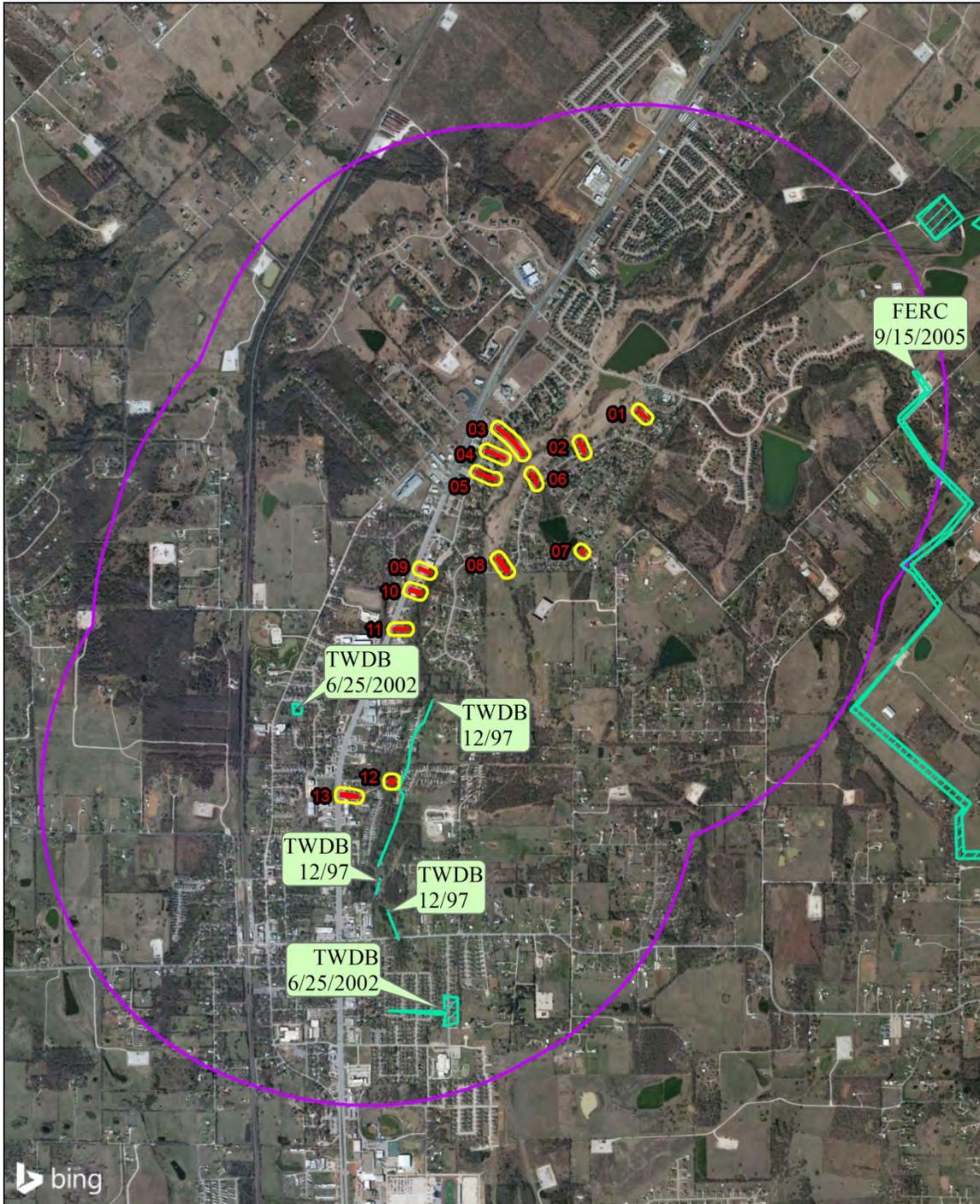
As shown by the Soil Survey of Johnson County, there are nine mapped soils within the project area, summarized in **Table 2**. Soil data was viewed from the U.S. Department of Agriculture (USDA) NRCS Web Soil Survey (Web Soil Survey 2016) (**Figure 4**).

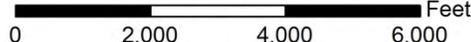
The project area is located within the Eastern Cross Timbers of the Cross Timbers ecoregion. The Eastern Cross Timbers regions was historically characterized by a narrow strip of timbered, low hills orientated along a north/south axis from Tishomingo, Oklahoma to Waco, Texas (Ferring 1994; McGowen et al. 1987). This region contains countless hills that were once heavily wooded consisting of oak, walnut, blackjack, and hickory trees that grow in deep sandy soil (Hill 1901). However, due to urban expansion, agricultural development, and other modern activities, the natural vegetation has become highly fragmented and only a few large tracts of undisturbed woodlands remain today (Texas Parks and Wildlife Department [TPWD] 2016).

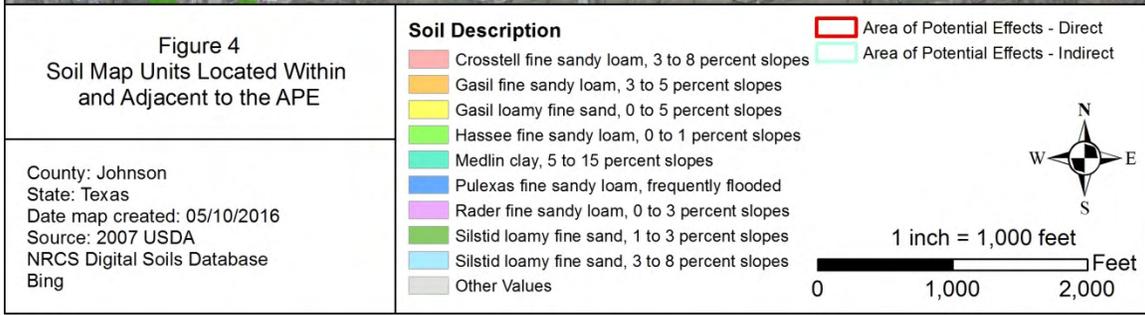
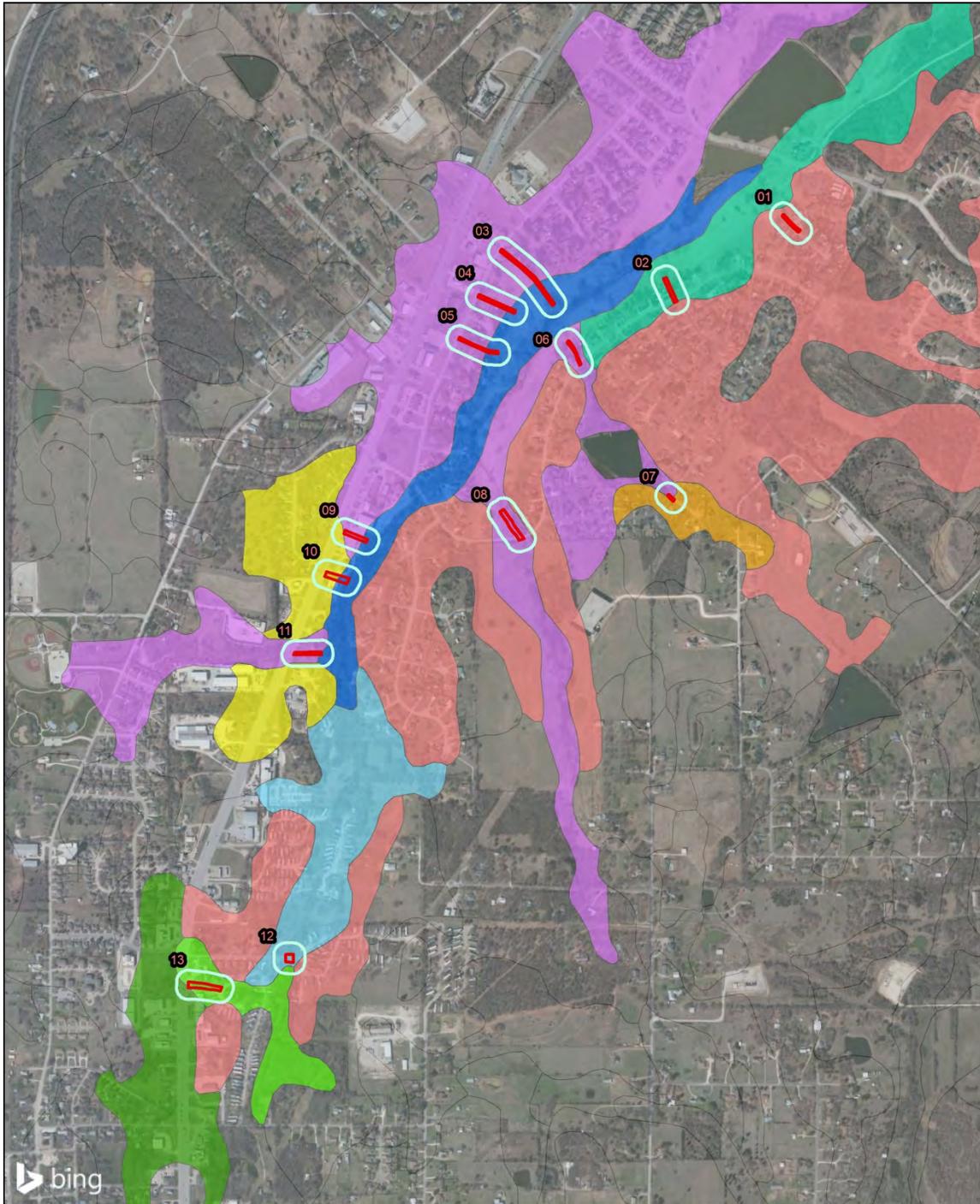
Table 2: Soils within the APE

Soil Series Description	Approximate Percentage of the APE
Crosstell fine sandy loam, 3 to 8 percent slopes – This component is described as fine sandy loam located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	7.9%
Gasil loamy fine sand, 0 to 5 percent slopes – This component is described as loamy fine sand located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	7.5%
Gasil fine sandy loam, 3 to 5 percent slopes – This component is described as fine sandy loam located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	2.8%
Hassee fine sandy loam, 0 to 1 percent slopes – This component is described as fine sandy loam located on closed depressions on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is moderately well drained.	14.0%
Medlin clay, 5 to 15 percent slopes – This component is described as clay located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	5.0%
Pulexas fine sandy loam, frequently flooded – This component is described as fine sandy loam located on flood plains. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	14.4%
Rader fine sandy loam, 0 to 3 percent slopes – This component is described as fine sandy loam located on stream terraces. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is moderately well drained.	40.7%
Silstid loamy fine sand, 1 to 3 percent slopes – This component is described as loamy fine sand located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	0.3%
Silstid loamy fine sand, 3 to 8 percent slopes – This component is described as loamy fine sand located on ridges. Depth to a root restrictive layer or bedrock is greater than 80 inches. The natural drainage class is well drained.	7.4%

The APE is underlain by the Woodbine (Kwb) Geologic Formation and Grayson Marl and Main Street Limestone (Kgm) (Figure 5). The Woodbine Formation underlies the Eagle Ford Formation, and the strata dates back to the late Cretaceous in the Upper Cenomanian stage (Winton 1925). The Woodbine Formation is primarily sandstone and contains a small percentage of siltstone, mudstone, and clay.



<p align="center">Figure 3 Previous Investigations Within One-Mile of the APE</p>	<ul style="list-style-type: none"> Area of Potential Effects - Direct Area of Potential Effects - Indirect Area of Potential Effects 1-Mile Buffer Previous Archeological Survey - Line Previous Archeological Survey - Area 	
<p>County: Johnson State: Texas Date map created: 05/10/2016 Source: (c) 2009 Microsoft Corporation and its data suppliers; ESRI 10.4 Bing</p>	<p align="center">1 inch = 2,000 feet</p> 	





<p>Figure 5 Geologic Setting</p>	<p>  Area of Potential Effects - Direct  Area of Potential Effects - Indirect Geologic Formation  Kwb - Woodbine Formation  Kgm - Grayson Marl and Main Street Limestone; undivided  Qal - alluvium </p>
<p> County: Johnson State: Texas Date map created: 05/10/2016 Source: 2007 USDA NRCS Digital Soils Database </p>	<p style="text-align: right;">  1 inch = 1,500 feet  Feet 0 1,500 3,000 4,500 </p>

CULTURAL RESOURCE POTENTIAL

Through regional historical aerial photograph review, it was determined the tributary of Village Creek, directly north of the project APE, was undeveloped as late as 1968. The 1978 historical topographic map identifies minimal residential structures within areas adjacent to the APE. Since 1995, the APE has remained largely unchanged.

The Potential Archeological Liability Map (PALM) for Fort Worth indicates that, within a reasonable context, portions of the project area directly adjacent to Village Creek have moderate to high potential for shallow and deeply buried cultural resources. The remaining more upland portions of the project area have a low to negligible potential for containing shallow or deeply buried cultural resources. However, the majority of the project area will be related to improvements to and replacements of existing outfall components. The potential for encountering intact cultural resources is low. In most areas, the highest potential will be at APE Sections 8, 12, and 13, which are within less developed areas containing wooded overstory along Village Creek.

PROPOSED METHODS

The scope of work shall include an intensive archeological survey of the APE according to the THC and Council of Texas Archeologists (CTA) Archeological Survey Standards for Texas (CTA 1996; 2001). Components of the survey may include, but are not limited to, archival and background research, pedestrian survey and reconnaissance, shovel testing and/or mechanical subsurface testing, artifact inventories, site recordation, and site assessment.

Pedestrian Survey

The 100 percent intensive pedestrian survey will consist of careful examination of the ground surface and existing subsurface exposures for evidence of archeological sites within the APE. The transect survey will consist of a single transect scheme, which will only be implemented within portions of the APE that are undeveloped and appear to have a potential for containing archeological deposits. Areas displaying high levels of disturbance will be photographed to document the lack of potential for intact archeological deposits. Other documentation methods will include narrative notes, maps, and shovel test records.

Shovel Testing

In areas with potential for archeological materials, shovel tests will be excavated to the top of culturally sterile deposits. Each shovel test will be 30 centimeters (cm) in diameter and will be hand excavated in natural stratigraphic levels not exceeding 20cm in thickness. Excavated soil will be screened using ¼-inch hardware cloth to test for the presences of buried cultural material. If clay content is high and cannot be efficiently screened, material will be troweled through by hand and inspected for cultural deposits. In addition, the physical properties of each arbitrary level will be recorded. All test locations will be recorded on paper and plotted using hand-held global positioning system (GPS) units. Investigators will document the results of each test on standardized shovel test forms. As described above, the intensive pedestrian survey with shovel testing will only transpire at identified areas of interest. CTA survey standards recommend that an APE of 2.24-acres, displaying little to no disturbance, should have approximately 6 shovel tests (three shovel tests per one acre) excavated during the pedestrian survey. However, as the APE is fragmented, a minimum of one shovel test will be excavated at each APE section. Shovel test numbers will likely vary from this amount based on the exact limit of cultural materials, the level of disturbance, erosion, and steep slope observed during the pedestrian survey. All positive shovel tests, cultural features, and other site data will be geospatially recorded using Trimble XT handheld GPS units.

Site Recording

Archeological sites will be evaluated through no fewer than six shovel tests (when necessary) to assess their horizontal extent and characterize depth of archeological deposits. Negative shovel tests, the distribution of surficial artifacts/features, distinct topographic features, and/or the APE extent would delimit the boundaries of each site. For the purposes of this survey, an archeological site will be defined as five or more surface artifacts within a 10m radius, a cultural feature observed on the surface or exposed during shovel testing, a positive shovel test containing two or more subsurface artifacts, or two or more positive shovel tests located within 30m of each other. All newly documented sites will be assigned a temporary field number and recorded on State of Texas forms, photographed, sketch mapped, and plotted on the USGS topographic quadrangle.

Site Assessment

A scaled map will be prepared for each identified archeological site, and each site will be plotted on the appropriate 7.5-minute USGS topographic map. The data from any encountered site recorded in the field will be processed at the IES office in McKinney, Texas to determine site significance and potential eligibility as a State Archeological Landmark (SAL) or listing on the NRHP. A variety of data will be used to assess site significance including date(s), artifact density, artifact variety, features density, feature variety, feature preservation, stratigraphic integrity, and amount of disturbance. Completed site forms will be submitted to the Texas Archeological Research Laboratory (TARL).

Curation

The survey will employ a non-collection strategy. Records, files, field notes, forms, and other documentation would be included in the curation package. All field-generated documents will be temporarily curated at the IES office and permanently curated at TARL. These documents and photographs will be organized and catalogued according to TARL curation standards.

REPORTING REQUIREMENTS

Following completion of fieldwork, IES will begin processing field data for the development of a technical report. The technical report will document the cultural and historical background search results, survey methods, and survey results. The report will include NRHP eligibility and/or eligibility for designation as a SAL and the appropriate criteria under which the sites were evaluated. The report will contain supporting illustrations including maps, plans, and photographs. Tabular data, artifact inventories, and other supporting information will be appended. The report will include recommendations for further work or no further work with appropriate justifications based on the requirements of 13 TAC 26 and 36 CFR 800. The report will conform to the CTA guidelines for cultural resources management reports (CTA 1992). The draft report will be submitted to the project sponsor or their representative prior to the THC review. All appropriate revisions will be incorporated into a final report. Upon THC's acceptance of the draft report, IES will prepare final reports and submit them to the City of Joshua, THC, and designated State of Texas libraries.

REFERENCES

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